United States Environmental Protection Agency
Office of Public Affairs Region 5 77 West Jackson Boulevard Chicago, Illinois 60604
Illinois Indiana Michigan Minnesota Ohio Wisconsin

U.S. EPA Recommends Cleanup Plan for Kerr-McGee Residential Areas Superfund Site and Portions of the Kress Creek Superfund Site

West Chicago, Illinois **August 1994**

Opportunities for Public Involvement

Public Comment Period

U.S. EPA will accept written comments on its recommended alternative presented in the EE/CA during a 30-day public comment period:

August 4 to September 2, 1994.

Public Meeting

U.S. EPA will hold a public meeting to explain and answer questions about the EE/CA. Oral and written comments will be accepted at the meeting, which will be held on:

Date: **Wednesday August 17, 1994**

Time: **7:30 p.m.**

Place: **West Chicago High School Auditorium 326 Joliet Street West Chicago, Illinois**

Introduction

The U. S. Environmental Protection Agency (U.S. EPA) has completed a document called an Engineering Evaluation/Cost Analysis (EE/CA) for the Kerr-McGee Residential Areas site and portions of the Kress Creek site. The Residential Areas and Kress Creek are two of four Superfund sites associated with the Kerr-McGee Rare Earths Facility (Kerr-McGee facility). The Residential Areas site encompasses residential, commercial, institutional, and municipal properties in various locations within the City of West Chicago and surrounding DuPage County. The portions of the Kress Creek site addressed in the EE/CA are floodplain soils that are residential. Creek sediments and non-residential floodplain soils are not addressed in the EE/CA.

For the Residential Areas site and portions of the Kress Creek site, U.S. EPA has concluded from existing data that an expedited response action is warranted, without waiting for the results of lengthy studies. U.S. EPA therefore chose to conduct a non-time-critical removal action at these sites. U.S. EPA is required to prepare an EE/CA and provide an opportunity for public comment before implementing a non-time-critical removal action. The EE/CA evaluated a range of alternatives to address contaminated soils at the sites. This fact sheet summarizes the cleanup alternatives that have been considered by U.S. EPA for the Residential Areas and portions of Kress Creek, and presents U.S. EPA's recommended alternative. A detailed description of the recommended alternative and other alternatives that U.S. EPA considered is in the EE/CA document. The EE/CA report, along with previous fact sheets and additional background information, is available for public review in the information repositories listed on the back page.

Public input on U.S. EPA's recommended alternative is important to the remedy selection process. (See box left.) The public is encouraged to review and comment on U.S. EPA's recommended alternative. Based on information obtained through public comments, U.S. EPA may modify its recommended alternative or select another alternative presented in the EE/CA. U.S. EPA will prepare a written response to significant written or oral comments submitted during the public comment period. This document, called a "Responsiveness Summary," will be available for public review at the information repositories.

Background

The Lindsay Light and Chemical Corporation, and later Kerr-McGee, operated a factory at 783 Factory Street in West Chicago from 1932 to 1973. This facility extracted and processed thorium and other elements from various ores shipped to the facility. These elements were used for various manufacturing processes. Thorium was used to make mantles for gas lights and lanterns. Thorium also was sold to the federal government for nuclear research projects.

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Background (continued)

The waste material left over from the processing operations, called "mill tailings," was stored at the Kerr-McGee facility. During the 1930s through early 1950s, mill tailings were hauled away for use in landscaping and as material to fill in low-lying areas. Later, it was discovered that the wastes from the Kerr-McGee facility were potentially hazardous due to radioactivity. In addition, discharges and runoff from the Kerr-McGee facility reached Kress Creek through a storm sewer, resulting in contamination of creek sediments. Soils in the floodplain then became contaminated as a result of flooding. (See previous fact sheets in the repositories for additional information on radioactivity and the history of the sites.)

Site Definition

The Residential Areas site encompasses all properties that are potentially contaminated with thorium mill tailings in and around West Chicago, and that are not included in one of the other three Superfund sites or the Kerr-McGee facility. U.S. EPA's initial plans for conducting site investigation activities are to include those properties located within certain areas shown in a 1989 aerial radiological survey. This survey used low-flying airplanes equipped with special monitoring devices to detect radiation "hotspots" on the ground. The aerial survey showed a few large areas and a number of smaller areas of elevated gamma radiation readings. The boundaries of these areas are known as the "flyover contours." The initial site investigation activities will include all those properties within the boundaries of the flyover contours. (See Figure 1.) Currently these boundaries include approximately 1500 properties, located in twelve separate areas, totalling almost 700 acres. The residential portions of the Kress Creek site addressed in the EE/CA are included in the boundaries shown in Figure 1.

The site investigation activities will include all properties within the flyover contours, as well as some areas just outside of the contours. In addition, U.S. EPA is looking into other ways of investigating the areas outside the flyover contours for possible contamination. If contamination is found outside of the original flyover contours, the site boundaries will be expanded to include those areas.

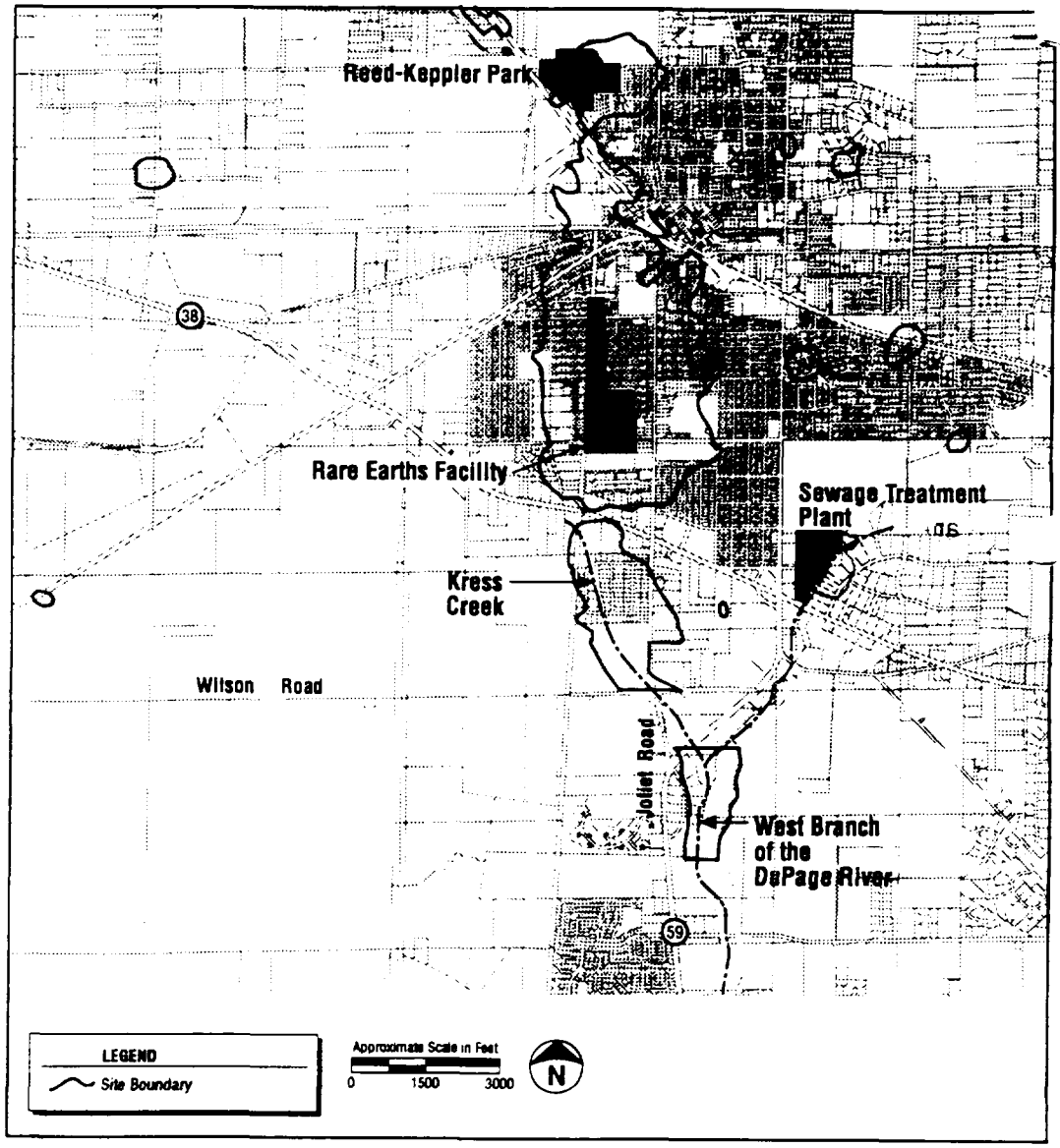

Figure 1 - Residential Areas Site Study Area

Characterization of Site Risks

Exposure to radiation can have many negative health effects on the human body. For West Chicago, U.S. EPA is most concerned about radiation's ability to cause cancer. Many scientists and health experts believe that prolonged exposure to radiation increases the probability of contracting cancer. U.S. EPA has determined that health risks at contaminated residential properties are of concern and warrant action.

There are four primary routes of exposure for radioactive contaminants to enter the body:

- Direct exposure to the body from gamma radiation being emitted from contaminated soil.
- Direct contact of skin with contaminated soils.
- Inhalation of gases, such as radon and thoron, which are produced when unstable elements such as uranium and thorium break down or "decay" over a period of time. The gases can infiltrate buildings and accumulate in confined spaces.
- Ingestion of contaminated soil and homegrown vegetables grown in contaminated soil. (Vegetables grown in contaminated soil can uptake radionuclides into the plant.)

Process for Evaluation of Removal Action Alternatives

In order to arrive at a recommended response action for a site, U.S. EPA (1) identifies possible removal action alternatives, (2) screens them to find those most suitable to the site, (3) analyzes each alternative in detail, and (4) compares each alternative against the others. Based on the results of this analysis, U.S. EPA recommends an alternative for the site that best satisfies the evaluation criteria.

U.S. EPA uses three evaluation criteria to screen, analyze and compare cleanup alternatives in an EE/CA. The evaluation criteria consist of:

1. Effectiveness -- overall protection of public health and the environment; compliance with regulatory requirements; and the reduction of toxicity, mobility, or volume of contaminants through treatment.

2. Implementability -- the technical feasibility (such as the availability of goods and services) and administrative feasibility of implementing the cleanup alternative.

3. Cost -- direct capital costs (such as construction, equipment and material, transportation and disposal, laboratory analysis) and indirect capital costs (such as engineering work, legal services, licensing and permitting).

Description of the Alternatives Considered

U.S. EPA considered the following general response actions in the EE/CA: **engineering controls for radon/thoron reduction** by either removing the gases from the air after they have entered a home (e.g., ventilation in a crawlspace) or preventing the gases from entering the home (e.g., sealing the structure); **institutional controls** to limit exposure to the contamination by regulating or restricting people's behavior or activities (e.g., posting of signs, deed restrictions); **in-situ containment** to confine the contamination at its present location and to place a barrier between the contamination and people (e.g., covering or capping contaminated soil); **excavation and restoration** to remove the contamination from properties and restore the properties; **treatment** of the contaminated soils by reducing the volume of contamination (e.g., chemical or physical separation) or immobilizing the contamination (e.g., mixing the contaminated soil with a cement-like mixture); interim storage of excavated soils either at the Kerr-McGee facility or some other facility; **permanent off-site disposal** at a licensed disposal site (e.g., Envirocare); and **recontamination prevention** for portions of Kress Creek floodplains to prevent cleaned-up areas from getting recontaminated (e.g., earthen berm or sheet piling).

After an initial screening of the above potential response actions against the criteria of effectiveness, implementability and cost, a number of response actions were rejected from further consideration. The response actions that passed the initial screening were then combined into preliminary alternatives, which then were evaluated in detail, both independently and against each other. The alternatives that EPA evaluated in detail included:

Alternative 1 - No Action. Under this alternative, action at the Residential Areas site and portions of the Kress Creek site would be postponed until EPA issues a Record of Decision (final decision document) for the sites.

Alternative 2 - Source Removal. This alternative consists of expedited excavation of contaminated soil from properties (both the Residential Areas site and the portions of the Kress Creek site that are residential floodplain soils), backfill and restoration of the properties, packaging of the waste (if needed), transportation to the disposal site by railcars from the Kerr-McGee facility, and final disposal. Engineering controls to reduce radon and thoron concentrations, as well

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Description of the Alternatives Considered (continued)

as specific institutional controls, could be used at a small number of properties where excavation cannot be accomplished. Recontamination by flooding of floodplain soils, if any, would be cleaned up during the final remedy for the rest of the Kress Creek site.

Costs for Alternative 2 vary depending on the number of contaminated properties needing cleanup and the amount of contamination on each property, both of which are unknown at this time. Also, in order to have a consistent basis for estimating and comparing the costs of the various alternatives, EPA assumed that the excavated material would be packaged in durable plastic bags prior to shipment from the site. (This assumption in the EE/CA does not preclude the removal action contractor from using other methods, such as bulk shipment or other forms of packaging.) Based on the cost assumptions in the EE/CA, the costs for Alternative 2 are estimated as follows:

- $22 million for 15,000 cubic yards of soil (50 properties)
- $39 million for 30,000 cubic yards of soil (100 properties)
- $65 million for 60,000 cubic yards of soil (200 properties)
- $119 million for 120,000 cubic yards of soil (400 properties)

Alternative 2, Contingent Action A - Interim Storage. This contingent action consists of interim storage of the excavated soils at the Kerr-McGee facility in the unlikely event that transportation or disposal of the wastes is delayed. It is estimated that this contingent action could increase the cost of the base alternative by 3 to 4 percent (assuming that 50% of the total volume of excavated soil is on the Kerr-McGee facility when storage fees are levied by the State of Illinois).

Alternative 2, Contingent Action B - Off-Rare Earths Facility Staging Area. This contingent action consists of using a railspur and staging area other than the Kerr-McGee facility for transporting the excavated soils to the disposal facility. This contingent action would be necessary in the unlikely event that the Kerr-McGee facility is unavailable for use (e.g., if railspur construction is delayed, or if Kerr-McGee does not conduct the removal action and the work is conducted instead by EPA). The excavated soils would need to be properly packaged for this contingent action to avoid the need for licensing of the staging area, which if required would significantly delay cleanups. It is estimated that this contingent action could increase the cost of the base alternative by 0.8 to 1.2 percent.

Alternative 2, Contingent Action C - Recontamination Prevention. This contingent action is a temporary measure to prevent/reduce recontamination of floodplain soils on residential properties in the Kress Creek area. It consists of installing steel sheet piling between Kress Creek/West Branch DuPage River and the affected residential properties. The sheet piling would be driven 9 feet below ground surface and would need to extend 8 feet above ground surface to protect the floodplains from a 100-year flood. It is estimated that this contingent action could increase the cost of the base alternative by 1 to 7 percent.

U.S. EPA's Recommended Alternative

Based on the detailed evaluation and comparison of the preliminary alternatives, U.S. EPA has determined that Alternative 2, Source Removal, best satisfies the removal action objectives and the three evaluation criteria. Contingent Action A (interim storage) and Contingent Action B (off-Rare Earths Facility staging area) are also allowed in the unlikely event that they are needed.

Contingent Action C, Recontamination Prevention, is not recommended at this time. Although the cost of installing an 8-foot high sheet piling barrier appears more cost-effective than cleaning up the floodplain's soils a second time, this is based on the assumptions that (1) severe floods (such as a 100-year flood) occur prior to the remediation of the rest of the Kress Creek site, and (2) such a severe flood in fact recontaminates a significant fraction of the floodplain. Steel sheet piling is only fully cost effective if it is assumed that there is a high probability of this occurring. In addition, administrative hurdles associated with this contingent action would significantly delay the initial cleanup, and it is anticipated that the sheet pilings would generate significant community concerns. For these reasons, EPA recommends that the residential floodplain soils be cleaned up at the same time as the Residential Areas site, without the installation of steel sheet piling. If flooding recontaminates the cleaned-up portions of the Kress Creek site, a second cleanup effort would occur during the Kress Creek site remediation.

Under the recommended source removal alternative, access agreements between the property owners and the cleanup contractor will be obtained prior to the start of excavation. An emergency safety plan will be coordinated with local police, fire, utility, and emergency personnel.

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U.S. EPA's Recommended Alternative (continued)

Open areas will be excavated with conventional earthmoving equipment such as bulldozers and front end loaders. Areas with limited access, such as immediately next to or underneath structures, will be excavated using procedures that support and maintain the integrity of the structures and utilities.

After the excavation, Illinois Department of Nuclear Safety will conduct tests to ensure that the property has been cleaned to U.S. EPA standards. Upon receipt of data showing that the property has been cleaned to appropriate levels, excavated areas will be replaced with clean fill and the property restored, to the extent practicable, to its original condition or some other condition agreed to by the property owner and the contractor.

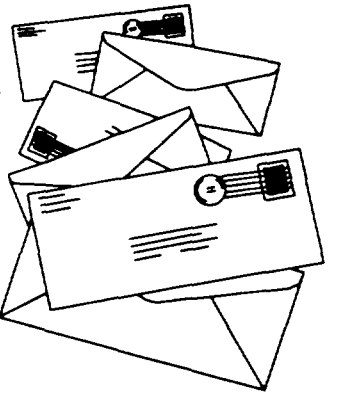
U.S. EPA anticipates that in most cases, excavation and restoration could be completed without temporarily relocating residents. There may be some situations where contamination is found underneath a structure, however, where it may be necessary to move the structure or break up and remove the basement slab. Such cases would involve temporary relocation of residents.

Risks to the general public during the removal action are likely to be negligible, and will be controlled by using appropriate mitigating measures such as dust suppression to minimize airborne contamination. In addition, safety measures such as proper training, dust suppression techniques, and protective clothing will be used during the removal action to protect the health of workers.

The Next Step

U.S. EPA will consider public comments received during the public comment period (August 4 to September 2, 1994) before deciding on a cleanup plan. After deciding on a cleanup plan, EPA will issue a decision document known as an Action Memorandum. The Action Memorandum and the Responsiveness Summary (see page 1) will be available for review at the information repositories.

Mailing list additions



If you did not receive this fact sheet by mail, then you are not on U.S. EPA's mailing list to receive further information about the Kerr-McGee Superfund sites. If you would like to be added to the mailing list, please fill out this form and return it to Eileen Deamer at the address indicated on the back page.

Name: _____

Address: _____

_____

Telephone: _____

Affiliation: _____

Information Repositories

The EE/CA, Community Relations Plan, fact sheets, and other site-related information are available at the following information repositories:

West Chicago Public Library
118 West Washington Street
West Chicago, Illinois
(708) 231-1552

Hours:
Monday--Thursday 9:00 a.m.--9:00 p.m.
Friday and Saturday 9:00 a.m.--5:00 p.m.
Closed Sundays

Warrenville Public Library
28W751 Stafford Place
Warrenville, Illinois
(708) 393-1171

Hours:
Monday--Thursday 10:00 a.m.--9:00 p.m.
Friday 10:00 a.m.--7:00 p.m.
Saturday 10:00 a.m.--5:00 p.m.
Closed Sundays

For Additional Information

If you have questions about the information in this fact sheet or would like additional information about the EE/CA for the Kerr-McGee Residential Areas site and portions of the Kress Creek site, please write or call the U.S. EPA project staff listed below:

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